Writing Your Own Scientific Explanation

1. Examine the data table below.

2. Write a scientific explanation stating whether or not **different starting temperatures** of water (5˚ C, 11˚ C, and 51˚ C) has an effect on the **amount of time** it takes for the water to begin boiling.

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| **Starting Temperature vs. Time to Boil** | | | | |
| **Starting Temperature** | **Time to Boil**  (seconds) | | | |
| Trial 1 | Trial 2 | Trial 3 | Average |
| 5˚ C  (Can A, Ice water) | 265 | 267 | 272 | 268 |
| 11˚ C  (Can B, Cold water) | 257 | 252 | 253 | 254 |
| 51˚ C  (Can C, Hot water) | 142 | 140 | 138 | 140 |

**Scientific Explanation**

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**Examining a Student Explanation Part 1**

**Brandon’s First Explanation about Starting Temperature and Time to Boil**

The starting temperature does matter. It takes a long time for water to boil. If the water is really cold then it will take a really long time to boil. The data table is my evidence.

What does Brandon do well in his scientific explanation?

What questions would you ask Brandon to help him make his explanation better?

What makes a scientific explanation strong?

**Examining a Student Explanation Part 2**

**Brandon’s Second Explanation about Starting Temperature and Time to Boil**

Hot water boils faster than cold water. The hot water boiled before the ice water and cold water. The cold water took an average of 254 seconds whereas the hot water took only an average of 140. There were three trials for each temperature and they all took about the same time. We controlled all the other variables (amount of water, heat source, size of can) so we know the starting temperature is what made the difference. Hot water is already hot so it does not take long to heat up to boiling point.

What changes did Brandon make to his explanation?

In what ways did these changes make the explanation more clear?